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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/991,487	11/21/2001	Dennis L. Montgomery	042503/0273342 (ETV-016-U)	3181
909	7590	10/28/2003	EXAMINER	
PILLSBURY WINTHROP, LLP P.O. BOX 10500 MCLEAN, VA 22102			PEUGH, BRIAN R	
			ART UNIT	PAPER NUMBER
			2187	6
DATE MAILED: 10/28/2003				

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/991,487

Applicant(s)

MONTGOMERY, DENNIS L.

Examiner

Brian R. Peugh

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 21 November 2001.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-7 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-7 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 21 November 2001 is/are: a) ☐ accepted or b) ☒ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on _____ is: a) ☐ approved b) ☐ disapproved by the Examiner.
If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

- 13) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
* See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892) 4) ☐ Interview Summary (PTO-413) Paper No(s). _____
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948) 5) ☐ Notice of Informal Patent Application (PTO-152)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449) Paper No(s) 5. 6) ☐ Other:

DETAILED ACTION

Information Disclosure Statement

The information disclosure statement (IDS) submitted on June 25, 2003 is in compliance with the provisions of 37 CFR 1.97. Accordingly, the information disclosure statement is being considered by the examiner.

Drawings

The drawings are objected to because Figures 1A, 1B, and 1C require —Prior Art— tags, due to their inclusion within the “Background of the Related Art” section of the Specification. A proposed drawing correction or corrected drawings are required in reply to the Office action to avoid abandonment of the application. The objection to the drawings will not be held in abeyance.

Claim Objections

Claims 1-4 and 7 are objected to because of the following informalities:

In claim 1, line 2, please replace “the” with —a--.

In claim 1, line 4, please insert —said— before the first instance of “monitoring” in order to facilitate proper antecedent basis.

Claim 7 recites that “the weighing system weights the data units based on priority, subject matter and age”. Parent claim 5, upon which claim 7 depends, recites that the “predetermined weighting system” weights the “data units in the order of high

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priority, new data; high priority, old data; low priority, new data; low priority, old data in terms of desirability to retain". It is unclear to the Examiner whether the "weighting system" of claim 7 is the same as the "predetermined weighting system" of claim 5. The "predetermined weighting system" of claim 5 includes values based on priority and age, while the "weighting system" of claim 7 is based upon priority, *subject matter*, and age. The "predetermined weighting system" of claim 5 does not include or make reference to "subject matter" as being used for determining the weight of a data unit. The Applicant is encourage to correlate the two systems by including --predetermined-- before "weighting" in line 1 of claim 7, or differentiate them should that be the case,

Claims 2-4 are objected to as being dependent upon an objected claim.

Claim Rejections - 35 USC § 112

The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

Claims 1-7 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Regarding claim 1, the claim recites a number of 'means' limitations including "receiving means", "monitoring means", "weighting means", and "erasure means". Applicant's Specification discloses to "Assume that the controller has received an image to be stored on the hard disk, and that the disk drive is full" (page 3, para. 13, lines 1-3), that "The controller can then ... select enough low-scoring data units for erasure so that

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there will be enough room for the new data", and that "The controller can then instruct the disk unit to erase the selected field and store the new data therein" (page 4, para. 14, lines 4-7). Applicant's Specification fails to recite or adequately disclose that the 'monitoring means' is able to generate "an indication of whether there is enough free space in the storage device to store the new data".

Regarding claim 5, Applicant's Specification fails to recite or adequately disclose generating "an indication of whether there is enough free space in the storage device to store the new data".

Claims 2-4, 6, and 7 are rejected as being dependent upon a previously rejected claim.

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

Claims 1-3, 5, and 6 are rejected under 35 U.S.C. 102(b) as being anticipated by Falcone et al. (US# 5,432,919).

Regarding claims 1 and 3, Falcone et al. teaches a system for managing data in a cache memory storage device. Data storage system (10) includes a CPU (12), cache (18) and disk (30). Specifically regarding claim 3, the cache is divided into a high priority, or protected region (60), and a low priority, or probationary region (62). Each

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region (60) and (62) has a most recently used (MRU) and least recently used (LRU) section (col. 5, lines 36-46). Returning to claim 1, should a read request to the cache result in a 'hit' to the probationary region according to directory logic circuit (16) (monitoring means, as claimed), a 'hit' signal is sent to the cache over line (20). The data corresponding to the 'hit' is then moved from the probationary memory to the protected memory and placed in the MRU section of the protected memory via line (66) (col. 5, lines 53-66). Thus, the new data found in the MRU section of the protected (high priority) region constitutes a 'new' piece of data above the older data (old data) that was previously entered into the protected region of the cache. If the protected region is full, the data in the LRU position in the protected memory is removed (deleted) and moved to the MRU position of the probationary region in order to make room for the incoming data to the MRU position of the protected region (col. 5, lines 61-66).

The Falcone et al. reference does not recite specific 'means for' structures, or attribute a specific 'means' to a specific operation. According to Applicant's Specification, and specifically page 3, para. 13, lines 1-3, and page 4, para.14, lines 4-7, the Examiner believes that the disclosed 'controller' corresponds to "the system comprising" each of the 'means' structures, and will interpret the claim as such. This interpretation is in agreement with the present invention as seen in Applicant's Figure 2. The data storage processing system of Falcone et al., as seen in Figures 1-4 (col. 2, line 60 – col. 3, line 4) and when taken as a whole without disk (30), would constitute a 'controller' for the processing of data into and out of the cache, and would inherently contain the 'means' for accomplishing the functions, or methods, related to the data

processing according to Falcone et al. and recited above. The data storage processing system of Falcone et al. would thus inherently contain a 'means' for generating an indication that there is not enough storage space for an incoming piece of data, as related to the data storage processing system indicating that the protected memory is full and cannot store the incoming data (col. 5, lines 61-66)

Regarding claim 5, Falcone et al. teaches a system for managing data in a cache memory storage device. Data storage system (10) includes a CPU (12), cache (18) and disk (30). The cache is divided into a high priority, or protected region (60), and a low priority, or probationary region (62). Each region (60) and (62) has a most recently used (MRU) and least recently used (LRU) section (col. 5, lines 36-46). Should a read request to the cache result in a 'hit' to the probationary region according to directory logic circuit (16) (monitoring means, as claimed), a 'hit' signal is sent to the cache over line (20). The data corresponding to the 'hit' is then moved from the probationary memory to the protected memory and placed in the MRU section of the protected memory via line (66) (col. 5, lines 53-66). Thus, the new data found in the MRU section of the protected (high priority) region constitutes a 'new' piece of data above the older data (old data) that was previously entered into the protected region of the cache. If the protected region is full, the data in the LRU position in the protected memory is removed (deleted) and moved to the MRU position of the probationary region in order to make room for the incoming data to the MRU position of the protected region (col. 5, lines 61-66).

Regarding claims 2 and 6, the weighting system of Falcone et al. weighs data according to priority (high and low priority regions) and age (MRU and LRU positioning, as described above).

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 4 and 7 are rejected under 35 U.S.C. 103(a) as being unpatentable over Falcone et al. (US# 5,432,919) and Dean et al. (US# 6,532,520).

The Falcone et al. reference recites weighting data based on priority and age, as disclosed above.

The difference between the claimed subject matter and that of Falcone et al. is that the claims recite also weighting data based on subject matter. Dean et al. teaches a unified cache for storing both instructions and data (col. 3, lines 20-24). An up-down counter (202) counts the number of misses to data and the number of misses to instructions according to cache accesses (col. 4, lines 59-63). When a miss to the cache occurs, the cache line to be replaced depends upon the count of the up-down counter. Should the cache line to be replaced contain data, and more misses to instructions be the case, the cache line is replaceable. On the other hand, should the cache line be an instruction, and more misses to instructions is still the case, the cache

line is precluded from being replaced (col. 5, lines 26-33, 46-56, & 59-67). Therefore it would have been obvious to one of ordinary skill in the art having the teachings of Falcone et al. and Dean et al. before him at the time the invention was made to modify the caching and weighting system of Falcone et al. to include the unified cache and replacement scheme of Dean, because then a unified cache makes more efficient use of total cache capacity than a split cache and the cache can be weighted towards either instructions or data types of cache items according to application, as taught by Dean et al.

Conclusion

The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. The prior art corresponds to related data replacement systems.

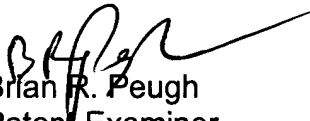
Any inquiry concerning this communication or earlier communications from the examiner should be directed to Brian R. Peugh whose telephone number is 703-306-5843. The examiner can normally be reached on Monday-Thursday from 7:00am to 4:30pm. The examiner can also be reached on alternate Friday's from 7:00am to 4:30pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Donald Sparks, can be reached on (703) 308-1756. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

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Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is 703-305-9600.

October 14, 2003



Brian R. Peugh
Patent Examiner
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